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# A THEORY OF KNOWLEDGE

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THE WISDOM OF THE BEASTS

Philosophical Fables.

# A THEORY OF KNOWLEDGE

BY

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# Introduction

THE theory set forth in the following pages rests on two assumptions: that there is a real world in time and space, and that the self is a part of it. I cannot resist the conviction that Nature, spread out in time and space as it appears to be, is real; and everything seems to me to show that the self, with all its faculties, is an outgrowth of Nature, though in some of its manifestations it rises above Nature.

I conceive the self as consisting of immediate experience, or feeling.

In the first chapter, availing myself of the help of an important discussion of Mr. Bradley, I endeavour to show that

there is such a thing as immediate experience, that is, experience in which there is no distinction of subject and object.

In the second, I give reasons for thinking that immediate experience is in time and space, and constitutes the inner being or substance of the things we perceive. The self would then be identical with an extract from, or pattern of processes in, the nervous system.

In the third chapter I discuss the bearing of this on knowledge. There is a feeling (say, a visual sensation) in the brain, and this feeling is the part of the self which enables it to know. When a not-self appears before the self, it does so because we react or tend to react as if we were in the presence of an object—the feeling being that which prompts us to do so, and directs our activity : in such wise that the datum (the object as given) is apprehended, not by the feeling alone,

but by feeling and activity combined—in other words, *by the intellect.*

*No feeling is ever as such a datum.* When it seems to be a datum, it is because the intellect is now directed upon *it*, not upon the external thing: two activities of the mind which cannot occur together. The intellect is directed upon the feeling, because the feeling prompts us to movement appropriate to itself as a feeling; when this happens, the feeling is not merely in our minds, but it has become a datum for us.

It is easy, in analysing perception, to change inadvertently the direction of one's attention, and fix it on something, namely the visual or auditory sensation, which is not the datum of perception at all; all the while imagining that one is still perceiving. This is done, I think, when it is said that what we see is evidently "a patch of colour"; it is certainly done

when it is said that, in looking obliquely at a coin, what we see is "oval." The element of objectivity, of externality, has been omitted, which is essential in perception. We do not see mere colour, or an oval—we see a coloured thing, a round coin one side of which is farther away from us than the other. This inadvertent substitution of the "sense-datum" for the true datum of perception seems to me to vitiate most contemporary thought on this subject; and even to be the secret of the hold which some widely received systems of philosophy have on the mind.

After discussing the application of the theory to the different forms of knowledge, I draw in the fourth chapter the consequences that follow from it as regards life and action.

A philosopher is commonly thought of as a reasoner, but I would rather conceive him as a person who is careful in his

assumptions. The most agile reasoners are sometimes indifferent or not sufficiently careful as to their premises, in accordance with Mr. Russell's *mot* that a mathematician is a man who does not know what he is talking about or care whether what he says is true, so long as it is correctly reasoned.

The chief differences of opinion in philosophy—such as, whether the fundamental reality is matter or spirit, whether it is one or many, whether it is the same as our experiences of it or different from them—owe their persistence, so it seems to me, to assumptions, often made hastily, concerning the factors and the relations involved in the simplest form of knowledge, perception: so much so, that it is waste of time, and productive of endless confusion, to discuss remoter issues, and not concentrate attention on the primary question, the analysis of perception.

At a moment when such marvellous advances are being made in physics, a philosopher can but turn with melancholy from the order and intellectual discipline which are there the rule to the anarchy and chaos in his own department. Is there never to be a principle upon which all metaphysicians are agreed? The reader may think the theory here set forth ill adapted to serve as such a principle. I can at least say that I have honestly tried, so far as my powers and my strength permitted, to make it accord both with the facts and with the spirit of natural science.

## CHAPTER I

# Immediate Experience

My theory rests on an analysis of perception which I can perhaps make clear to the reader by taking the example of hearing a sound.

A sound is ordinarily heard as an event outside us. Now the externality cannot be properly said to be heard, or sensible; and I suggest that it is brought before us by the motor tendencies that accompany the hearing of the sound. In the first place, we tend to turn the ear or the head in a certain direction; in the second place, we are prompted to act or prepare ourselves for action as with reference to an object outside us. These tendencies, according to current psychological theory, manifest themselves in consciousness only

in the form of sensations from the muscles, "bodily resonance"; but it is the actual contraction or tendency to contraction of the muscles, not the muscular sensations, upon which the exteriorization of the sound depends.

The result of these things is that the datum of perception—the external sound *as heard*—is not purely sensible, being due to an auditory sensation and a tendency to motion combined; or, to speak more correctly, it is not a datum of sensation at all, but a datum, as we may say, of *apprehension*, mediated partly by sensation and partly by movement. It is a sort of external terminus upon which these two sides of our nature converge. This activity of apprehending things without immediately feeling them—for we do apprehend them, as is shown by the fact of our acting with reference to them—must be conceived as an exercise of the intellect.

Perception is indeed usually referred to the intellect, but we are supposed to perceive the sound by connecting it

mentally with other earlier or possible experiences. That we do thus connect it there can be no doubt ; but such associative connecting, or "apperception," as the phrase is, is not necessary to our perceiving it : a new-born child, or a young animal, would perceive the sound as external if he turned his head toward the source and tended to react to the latter.

It is possible for us, on the other hand, to suppress these tendencies and consider the sound in itself. We do this when we become aware that we *hear* the sound ; or, to speak more exactly, when we take the sound in so far as it is an activity or state of hearing. Taken in this way, the sound is an auditory sensation. But when we were perceiving the external event, we did not take the sound in this way : the auditory sensation was not then a datum ; and it follows therefore (unless we are to consider that this change in the direction of our attention brought the thing observed into existence) that *during perception of the external event the auditory sensation*

*existed without being a datum.* Now this is what is meant by its being an immediate experience.

If we turn from hearing to vision, we find a similar state of things. Take, for instance, the visual perception of depth. Depth seems at first sight to be sensible. Yet it cannot be a character of visual sensation proper, for colours are extended in two dimensions only. There is a blurring due to binocular disparity, but this is not itself depth. And the sensations in the muscles of the eyes, whatever their importance, are evidently wholly unlike a depth, say, of a yard or of a rod. But the externality here can be easily explained if we recall, first, that when we see an object at a certain distance we look towards it and accommodate the eyes, and, secondly, that we instinctively prepare ourselves for action, if action should be called for, with reference to an object at that point. These motor tendencies, taken with the colour sensation, cause us to be aware of the datum "an external coloured thing." And, as

before, we can suppress the tendencies, and take the (extended) colour in itself as a bare experience, when what we have before us is the visual sensation. And this, again, was not a datum when we were naïvely perceiving; the datum then was "an external coloured thing."

Indeed, the mere use of our muscles, these bodily organs, in perceiving implies that what is before us is a thing, and not a bare state or quality; what we turn toward, accommodate for, and prepare to act with reference to, must be as material as the body.

Finally, in the case of touch, what we are aware of—say, in touching marble—is "a hard thing"; but if we choose to abstract from the externality and consider barely what we feel, the new datum is a pressure sensation. Similarly pain, as in the case of an aching tooth, may be projected outside the mind and taken as a state of the tooth; but if considered in itself, as a bare existence unreferred, it is a feeling.

It would be superfluous to repeat these well-worn examples, if it were not necessary to insist that the feeling or sensation is never observed at the same time as the external object; and that consequently, in observation of the external object, it exists without being a datum.

I turn from these concrete facts to Mr. Bradley's discussion, in his *Essays on Truth and Reality*, of "Our Knowledge of Immediate Experience," which seems to me one of the most acute and profound contributions to philosophy that have been made in our generation. I think his position is sound except in a certain point; with regard to that point I shall have criticisms to offer.

Mr. Bradley defines immediate experience as experience in which there is no distinction of subject and object; or, as I should say, it is feeling without a datum. It is, to his mind, "the one road . . . to the solution of ultimate problems" (p. 160); an opinion with which I

cordially agree. For him it is essential (here our roads diverge) to the defence of idealistic monism ; but it can be made to serve the purposes of a very different doctrine.

Let us hear his statement of the fundamental point. " I have had occasion often to urge the claims of immediate experience, and to insist that what we experience is not merely objects. The experienced will not all fall under the head of an object for a subject. If there were any such law, pain and pleasure would be obvious exceptions ; but the facts, when we look at them, show us that such a law does not exist. In my general feeling at any moment there is more than the objects before me, and no perception of objects will exhaust the sense of a living emotion. And the same result is evident when I consider my will. I cannot reduce my experienced volition to a movement of objects . . ." (p. 159).

The statement thus far seems to me unexceptionable, except for a certain point

which might be purely verbal. I refer to the phrase "what we experience." To say that "what we experience is not merely objects" is to imply that we experience also the subject—that is, the feeling or sensation; and the same thing is implied when it is said that "the experienced will not all fall under the head of an object for a subject"; likewise in the phrase "my experienced volition." Now we have seen that feeling or sensation, and the same will apply to emotion and will, are not data, except by virtue of a special act which usually at least is subsequent. Would it not be better, therefore, not to use the passive participle "experienc*ed*," which implies that they are objects or data, and to say of them simply that they are "experience," or "feeling"? I do not think of denying *this*—indeed, it is a vital part of my contention; but, if they are to be distinguished from data, it is important not to say that they are "felt" or "experienced," thus illegitimately fusing subsequent intro-

spective awareness of them with their original existence. In a matter requiring the utmost nicety and precision, we cannot be too careful not to use terms that suggest what is false. Our great need is to purify our conceptions.

I have interrupted the quotation in the middle in order to make this comment, and I now proceed with it. "I cannot accept the suggestion that of this my volition I have no direct knowledge at all. We in short have experience in which there is no distinction between my awareness and that of which it is aware. There is an immediate feeling, a knowing and being in one . . ." (p. 159).

Again I interrupt, to say that the little cloud that appeared on the horizon in the first part of the quotation has grown black and threatening in this.

It is not that Mr. Bradley does not deny any distinction between my awareness and that of which I am aware, between subject and object. He is perfectly clear as to what may be called the *simplicity*

of experience: "the distinction between the experienced and experience seems in the end totally inadmissible" (p. 194). But this is inconsistent with his description of experience as "awareness": how can there be awareness, which is awareness of nothing? Still more, when he says that he "cannot accept the suggestion that of this my volition I have no direct knowledge at all," the word "knowledge" seems to go far beyond anything that the circumstances, or his own doctrine, justify. Can there be knowledge without a datum, and is not knowledge the presence of a datum and something more?

Mr. Bradley's real view seems to be that there is in immediate experience, if not knowledge, at least awareness, but that between the awareness and that of which there is awareness there is no distinction. I believe that such a view means something right, but says something wrong.

The "awareness" which it ascribes to immediate experience is that peculiar character which we designate as *feeling*: I am

accustomed to call it the "psychical" character, and to use for it the metaphor of "luminosity." This character—such is the fundamental contention of the present book—implies no datum. (It *becomes* itself a datum, or rather becomes known through a datum, in introspection.) This is what is right. What is wrong is the suggestion—identical with that conveyed (and rightly conveyed) by the expressions "experienced," "felt"—that in mere feeling there is a datum. *Immediate experience becomes a datum* (*i.e. is known through a datum*) *only in introspection.* The only way to avoid this misleading suggestion is not to use the word "awareness" for immediate experience at all, but to content ourselves with "experience," "feeling."

But a final argument against us may be used. How, if a feeling is not awareness, can the mere addition of a movement or a motor tendency, something wholly external and unfelt, give rise to awareness? The answer is that, when a feeling is thus

used, the datum is quite properly said to be "felt"; and that the relation between a feeling and what is felt, in this external way, is what is meant by awareness. The difficulty now reduces itself wholly to a question of terms.

It is true that Mr. Bradley continues: ". . . A knowing and being in one, with which knowledge begins; and, though this is in a manner transcended [we have explained the manner], it nevertheless remains throughout as the present foundation of my known world. And if you remove this direct sense of my momentary contents and being, you bring down the whole of consciousness in one common wreck. For it is in the end ruin to divide experience into something on one side experienced as an object and on the other side something not experienced at all" (p. 160).

These sentences can hardly be acquitted of a measure of confusion. In the first place, there is a "sense," and it has "contents," that is, a specific character

(which appears in the object of perception and the object of introspection as a quality), which even contains (as Mr. Bradley later states) diversity; but it is not a sense *of* the contents, it is a sense containing them. And we do not "remove" this sense, hence there is no "ruin." In the second place, if the datum is not experienced in some sense, it is difficult to see how it can be a datum; and if it is experienced, Mr. Bradley himself divides experience into something on one side experienced as an object, and on the other side something not in that sense experienced at all.

Having now clarified our conceptions and fixed our terminology, let us consider some of the examples of immediate experience which Mr. Bradley cites.

A particularly convincing case is that of the will. He has a fine passage about it which deserves to be quoted. "We have in volition a positive experience, which is more than any sensation or idea or any mere set of sensations and ideas

with their relations and movements. If you take my state of mind before the volition, followed by the actual satisfaction with its awareness of agency, and if you attempt to confine all this within the limits of what takes place before me in the objective field, the result is failure. You perceive forthwith that in your analysis there is something left out, and that this something is a content which is experienced positively. The felt outgoing of myself and from myself has been ignored " (pp. 188-9). This seems to me excellent, down to the expression " experienced positively." After the previous discussion, we may without more ado substitute for this the words " which is a positive experience."

It is evident that the essential act in volition cannot be a datum at the moment when it is performed ; and if there seems to be any doubt as to this, it is removed by such an analysis of will as is made by modern psychology. Will is consent to an idea, a datum brought before the mind by an image which presumably is

heightened; but the mere heightening is not that in which volition consists. It consists rather in a removal of inhibitions, which up to the moment of willing or consent have been brought before the mind by sensations from the muscles; the fading or lowering of the images on which these inhibitions depend is thus as essential an ingredient of will as the central idea, and expresses itself in the sense of yielding to that idea. This sense is thus partly a matter of images and partly muscular.

Now both the fading ideas and the muscular contractions may be, along with the central idea, data before the mind; and it is this fact perhaps which accounts for Mr. Bradley's supposed observation that willing is "experienced" (p. 189) at the moment. On the other hand, *none* of the sensations and images (the immediate experiences) upon which these data depend can by any possibility be given at the same moment as the data. And if, therefore, we are to indulge in introspection of the will—the same as if we are to indulge in

introspection of the visual and auditory sensations used for perception—it must be subsequently to the occurrence of the act.

But there is another element to be considered. In the case of the sensations used for perception (which come from continuing objects outside us, not from events within us which are momentary and then gone), we can cease using a sensation for perception and use it, by the change in the direction of our attention before described, for knowledge of itself. Thus, in the case of sensations from outside objects, and also of continuing sensations from bodily parts or internal organs, it is possible to introspect a sensation at the moment of its existence ; while in the case of will and other acts, it is at most the after-image of the psychic event that can be introspected.

This, I think, is a sufficient answer to Mr. Bradley's refutation of those who hold " that my present state is not observed and that I depend wholly on memory " (p. 166).

Like the will, the various forms of emotion, and also pleasure and pain (the affection, not the sensation), are not originally data before us, but dwell as it were in the background of consciousness and constitute our attitude toward the object perceived. If one of these states, besides existing, is noticed, that is an additional fact: the existence of the feeling, and our awareness of it, are two distinct things. As we have seen this to be the case with visual and auditory sensations, we can have no difficulty in admitting it here.

There is, however, another way in which pain, pleasure, and emotion may come to our knowledge, although they were not as such data at the moment. These feelings may not remain entirely in the background, but may colour the foreground as well and add a quality to the datum: as when we say that a person is hateful, or a place pleasant. Or, again, in addition to perceiving the outer object, we may have a simultaneous less distinct awareness of our-

selves (that is, of the body, the empirical self) and feel the emotion taking place in its parts. But to both of these alternatives the same observation applies as to external perception : it is the data only of which we are thus aware, and for knowledge of the sensations underlying them we must have recourse to subsequent introspection.

Let us now ask what is meant by the *position in the background*, in which we have found emotions, volitions, and pleasure and pain to be placed.

The states used for perception (visual, auditory, tactile sensations) were not in such a position : though not themselves given, they "gave," as we might say—that is, they were heightened and yielded data that were present to attention ; but the emotional states yield no data, except in the form of the above described "colourings." They therefore are in the background, or belong to what is called the "field of inattention." Secondly, owing

to this position (and perhaps also to a lower degree of that heightening in which attention psychologically consists), they are not discriminated into parts; they have a certain vagueness or, to use Mr. Bradley's word, "nebulosity"; they are felt, when we cast a glance in their direction, only as wholes. If we chose—in the case of anger, for instance—we could at any moment discriminate and fix our attention on a part, which we should find to be a sensation in some internal organ; but this would be to break up the emotion, to do something more than merely feel. In naïve feeling and willing, our attention is directed wholly to the exciting cause, or the thing to be done, and we do not on that account the less truly feel and will.

It appears, then, that a removal of our attention from states of feeling does not cause them to vanish—except from the attention; that they can still exist, though without the benefit of our support; and this lends plausibility to another case of

immediate experience that has long caused speculation. "We all," says Mr. Bradley, "when our attention is directed to our extremities or to some internal organ, may become aware of sensations which previously we did not notice. And with regard to these sensations there may be a doubt whether they were actually there before, or have on the other hand been made by our attending" (p. 161).

Mr. Bradley takes the former view, in which I concur. These sensations (it may be, much reduced, through the absence of heightening) are merely an extension of the "field of inattention." This is a return to the *petites perceptions* of Leibniz; only these are not perceptions, they are mere sensations.

Note that this is a new class of immediate experiences: those we have considered hitherto were more strongly "illuminate," and used either in perceiving external objects or in reacting to them; these are still further in the background than emotion and will, and when unattended to may

exist in very reduced form ; finally, they are in no way data of awareness. But since we have recognized that feelings of the former class are not data of awareness, this is no bar to their existence.

Mr. Bradley points out that we cannot attend to the whole of them at once (p. 167) —their extent is too vast, as vast as the cubic contents of the body ; we can only single out some special area for attention ; when we do not do this, they are either not present to awareness at all (which is usually the case), or they collectively yield that portion of the total datum which is the sense of our own existence.

In this sense we meet again with that peculiar character of " nebulosity," of " totality," which struck us before in the case of emotion. What is the explanation of this character ? It will be found, I think, to be connected with the motor side of consciousness, and to be due to the fact that the feelings forming the sense of our bodily existence do not tend to

call forth separate reactions. Where this is the case, the feelings give rise to a single unanalysed datum. This condition of many feelings, as giving rise to a single datum, may be fitly called *confusion*; it is not a fusion of the feelings, for the moment attention is paid to them they are found to be distinct.

If their distinctness be doubted, let us turn to another instance of the same phenomenon—the "nebulae," as Mr. Bradley calls them, *within* the data forming the field of attention. As I look off at the field of view, there are a hundred objects which are not discriminated but only form part of the total picture; these objects excite my retina and my brain in exactly the same way as those to which attention is paid, they can hardly fail therefore to call forth sensations; but they yield no separate data—there is (or may be) only one datum, the field of view as a whole. This totality is a uniform characteristic of the datum; one is tempted to think that, if many details seem given at

one moment, it is because they tend to substitute themselves for the total datum (as our reactive tendencies change), and not because they are actually given at the moment.

Finally, it will be remembered that we explained the self as a pattern of processes in the nervous system (this of course presupposes the hypothesis of the identity of immediate experience with matter); and the question might be asked, why does this pattern stand out from other processes, as an isolated whole? The answer is, because it controls action—because it is the determinant of the motor tendency. This it is, as we have seen, that causes it to have a datum presented to it; this it is, again (owing to the interlacement or systematic unity of the nerve-process), that produces registration [1] and entails subsequent memory; it is this, finally, which gives individuality to the self and makes it a subject contemplating an object.

[1] So that wholes which have joined for motor purposes can be subsequently reinstated.

To sum up : our discussion of immediate experience has shown the essential importance of movement or the tendency thereto as a factor in cognition. The neglect of the motor side of the mind (a consequence of the abandonment of realism) appears as a grave omission.

Secondly, it follows from reconsideration of this factor that *the datum is distinct from the sensation.*

Granting this, the further consequence follows that the datum is not properly a datum of sense at all, but—and this is the summit of our wisdom—ALL DATA ARE DATA OF THE INTELLECT.

If this be so, then no sensation is ever as such a datum ; and the possibility appears that the unity, which we discover in the datum, does not belong to the sensation which is its vehicle ; that while the datum is one, the sensation may be many—in short, that our immediate experience may be continuous with the rest of the world.

*Omnia, quamvis diversis gradibus, animata.*

*Quo corpus aliquod reliquis aptius est ad plura simul agendum vel patiendum, eo ejus mens reliquis aptior est ad plura simul percipiendum.*

## CHAPTER II

# Time and Space

THE sensation is of course not *merely* many —it is not an aggregate of discrete parts. A glance at the visual field shows that it has continuity. Visual sensations are not only continuous in time, they have also continuity of a spatial sort. Now that we have distinguished the sensation from the datum, and ascribed unity solely to the datum, there is no difficulty in recognizing this inner continuity and voluminousness. If visual sensations do not appear to have three dimensions as well as two, if all sensations do not appear tridimensional, it may be because "confusion" has contracted the useless dimensions (the dimensions that have no bearing on action) into one—just as

it has apparently unified the sensations of the two eyes.

There is therefore nothing to prevent sensations—or some simpler form of immediate experience, something related to them as physical events in general are related to processes in the nervous system—from extending away indefinitely, beyond the borders of what we call our consciousness.

Mr. Bradley fully admits the inner plurality of immediate experience. He says that it "need not be devoid of internal diversity"; that "its content need not in this sense be simple, and possibly never is simple"; that "it may comprise simply in itself an indefinite amount of difference" (p. 174). But he insists that it does so "simply," that this many is "felt in one" (*ibid.*).

Though thus admitting that immediate experience contains terms, he is at pains to deny that it contains relations—perhaps because no relations are noticed (think of the indefinitely numerous unnoticed

relations in the visual field). "At any moment my actual experience, however relational its contents [by which, as the context shows, he here means the data given to it], is in the end non-relational. No analysis into relations and terms can ever exhaust its nature or fail in the end to belie its essence" (p. 176). If this means that the relations between the terms in immediate experience are not given, it is true ; if it means that the terms are not related, it is untrue.

He uses this idea of the unity or totality of immediate experience to explain the consciousness of relation. "Every distinction and relation rests on an immediate background of which we are aware [we have already dealt with this last assertion], and every distinction and relation (so far as experienced) is also felt, and felt in a sense to belong to an immediate totality" (pp. 177-8).

Where, and in what conditions, is this unity or totality supposed to be observed? It is supposed to be observed in intro-

spection of the feeling. In order to judge whether it really belongs to the feeling, we must examine more closely than we have done hitherto the nature of introspection.

Introspection is a form of cognition on a footing with perception, the difference between them being that in the one we see, hear, or touch an external thing, while in the other we fix our attention on a feeling. In many cases, as we have seen, introspection can only take place subsequently to the feeling, and be the observation of an image of it. I used to suppose that this was always the case, but Mr. Bradley has convinced me (see his passage, pp. 166 ff.) that a feeling can sometimes be observed at the moment of its existence. "To say that my present state is not observed [I do not admit that it *is* observed, but only that it can be] and that I depend wholly on memory, leads us into a position which is not tenable. . . . I am unable to verify in introspection

this constant presence of memory. . . . What I feel, that surely I may still feel, though I also at the same time make it an object before me" (p. 166). Note that thus the existence of a feeling and its being observed are not the same thing —it does not belong to the essence of a feeling to be given to observation, and when observation happens that is an adventitious fact (as all knowledge is adventitious to the existence known).

How then does observation happen? A feeling is made an object by attention fastening on it—that is, heightening or "illuminating" it; this growth of luminosity in the feeling is the beginning of action;[1] but the action, instead of being that appropriate to an external object, in which case we have before us a datum of the physical kind, may be that appropriate to something within the body or in the brain—or to the sensation itself, which is

[1] Feelings of innervation have been denied by psychologists; but it seems to me that the heightening or illumination of a visual or auditory sensation is such a feeling.

the same thing : and in that case we have the sensation as an object before us. For instance, I may accommodate for yonder electric light, but, while doing so, tend to react (as an effect of the attentive heightening) towards the mere state, considered as internal to myself : and I shall then be introspecting the light sensation.

But now, it would be contrary to our whole theory to suppose that such observation is a direct intuition of the light sensation—as if we had miraculously got outside it and were looking at it as observers. The logic of our doctrine of perception rather indicates that what has happened is that we have constructed for ourselves a datum, which is a datum of the intellect : that we have formed an idea of the light sensation, which must be distinguished from the light sensation itself however intimately it depends upon it for its givenness, and which may conceivably misinform us as to the constitution of the light sensation itself. The degree of validity of the information is a matter to be looked into.

Even in observation of a feeling at the moment of its existence, then, there is no infallibility. Cognition is still a forming of ideas about the object, an apprehension of meanings by the help of tendencies to movement, and necessarily limited by the poverty and inadequacy of these reactions. For example, we cannot see the feeling, even thus simultaneously cognized, to be many, except so far as we are capable of reacting separately to its parts. *Cognition even in this case is still mediate.*

If we cannot directly see the feeling to be many, much less can we perceive it to be one. And, owing to the mediate character of the observation, we are subject to illusion, because we fail to distinguish between the datum of introspection and the object introspected ; and, transferring the totality which is a character of the datum to the object, are apt to suppose that we have directly perceived it to be one. This is one of the fundamental illusions of metaphysics.

But now, having disproved the unity of the self (or, to speak with formal correctness, of the portion of immediate experience which forms the self—for a self is perhaps in strictness relative to a not-self), let us do even-handed justice by looking at the other side of the picture, and recognizing that the self has what in contrast to existential unity may be called *individuality*, and in what this individuality consists. It consists in the performance of the function which Kant called " apperception " — but which, substituting an English for the German word (and I think at the same time a correct for an erroneous idea), I should prefer to call *apprehension*—and to which he ascribed "synthetic unity." Apperception, or rather apprehension, is the function by which a portion of immediate experience yields a datum : in a word, it is awareness.

We have seen that the immediate experience forming the self is identical with a pattern of processes in the nervous system. What is a pattern ? It is a drawing, a

synthesis. What is the special nature of this synthesis—what are the elements, and what the systematic relation? The elements are the processes in particular nerve-fibres, many of which of the sensory kind have to join their forces to evoke processes in a group of motor nerve-fibres—the possible disproportion in number on each side being great, according to the width or narrowness of the stimulation and the width or narrowness of the reaction. Here is a "synthetic unity" resident in matter.[1] And it is a synthetic unity of apprehension, because the reaction to the stimulation is (if the case we are considering be perception) a response to an object outside the body. The mere nerves, we may say, apprehend that external object; and an animal that was all nerves and no feelings (like Descartes's automatic lower animals) would still know. But he would not be conscious. For this it is necessary that the stuff of things should be not matter

[1] This is Prof. Sherrington's "integration," *on the highest level.*

but immediate experience. And we may see in this truth a proof that our analysis of perception into an immediate experience that is bare sense and a datum that is purely intellectual was correct.

As we have been so successful with perception, let us look at memory (I mean the primary kind that follows immediately on an experience) and see what " synthetic unity " lies in it. We remember (in this primary way) because effects, after-vibrations of a stimulation, still take place in a group of fibres, and join with the present stimulation to influence reaction ; in perceiving a motion, for instance, the vision of previous positions of the object overlaps upon vision of its present position, and causes a peculiar blurring which is the " sense " of motion. Thus, as bare sensation is the matter for apprehending a present datum, so an image or a blurring in sense (for I think there are two cases) is the matter for apprehending a datum of the immediate past. Similarly a blurring caused by the disparity of the sensations

from the two retinae is the basis, the mere sensible matter, for the perception of depth: distance in space and distance in time being apprehensible on the same principle. Finally, the sense of *meaning* is due to a blurring of images, the particulars meant being too distant from the present thought to be apprehended distinctly.

As groups of fibres may still vibrate and cause primary memory, so they may reinstate their vibrations after an interval —if nerve-processes chance to be repeated that were associated with them before— as a pure effect of habit, and cause the phenomenon of memory proper. The "association" in question is simply the synthesis, already studied, by which stimulations join their forces to produce a reaction.[1] In all cases, what causes a datum to rise before the mind is the character of the total process as a *response*.

The physiology of cognition thus con-

[1] This association, in view of its effects, is, I think, by neurologists called *registration*.

firms our view that the attribution of unity to immediate experience as an existence is a fallacy ; that what has unity is solely the *function* of immediate experience as (with the assistance of the motor reaction) bringing before us a datum. This fallacy has had far-reaching and disastrous consequences. It is the source of two erroneous systems : Monism and Monadism.

As respects the former, let us consider the statements of Mr. Bradley. And we must distinguish his view of awareness, that is, apprehension, and his view of immediate experience. As to the first of these, his thesis is a peculiar one : he holds that " between the felt subject and the object [understand, datum] there is no relation at all " (p. 195). And the reason apparently is, that " there is emphatically no experience of a relation " (*ibid.*). This of course is idealism : unless a thing is experienced (as distinct from experience) it does not exist. But we recognize no such principle ; we hold that what exists is not the experienced but experience—

or, in other words, not the object as such, *i.e.* the datum, but the subject (and the world of which the subject is part).

But Mr. Bradley holds that the subject, " for which the object exists, is not related to it and yet is experienced with it " (p. 196). In fact, he holds that it is not related to it *because* he holds that it is experienced with it; the whole view is a result of assuming that immediate experience is experienc*ed*, and that if anything is not experienced it is " nothing " (p. 197 —cf. pp. 175, 193, 195). Idealism is applied first to the object and then to the subject, and then, since the subject at the moment when it acts as such does not happen to be a datum, yet to deny it then would be carrying scepticism further than is convenient, the subject is declared to be experienced in a different sense from that in which the object (datum) is experienced, the two are neither frankly fused together nor frankly kept apart, and there is denied to be a relation between them. No wonder if contradictions such

as this can be reconciled only in the Absolute.

Turning now to Mr. Bradley's view of immediate experience, he admits "diversities" in feeling—but no relations. (He means by this, apparently, that there is no consciousness of relations.) How there can be diversities without things being two or more, I do not understand; and how, being two or more, they can also be "one," within the bosom of immediate experience, still less—it seems to me a contradiction.

He admits that the immediate experience constituting the rest of the world is "outside" my immediate experience; and yet holds that these, again, are one—another contradiction.

If my immediate experience and the rest of immediate experience were held, besides "diversities," to have *continuity*—of a sort to be investigated—there would be no contradiction, and the fact that one is "outside" the other would be intelligible.

Our analysis has reached a point where

we can understand the source of these contradictions. There are three things to be distinguished: the datum, immediate experience, and the relation between the two. The datum (owing to the synthesis) is a whole, or has "totality"; immediate experience is a continuum; the synthesis of awareness, or glance by which immediate experience apprehends the datum, alone has unity. When these three are properly kept apart, all is harmonious, and there is no contradiction. But when awareness is said to be at once of the datum and of immediate experience, or when immediate experience is said to be in its nature awareness, confusion follows, and, as a result of the confusion, contradiction. The error consists in confusing the unity of the glance with the mere continuity of immediate experience.

It will be evident that Monadism is involved in the same ruin as Monism.[1]

[1] I hope, in these criticisms of Mr. Bradley which now come to an end, I have said nothing to obscure my respect for him as a great mind, very close in his general view of things to the truth, though his monism and idealism seem to me wrong.

Our next duty is to ask in what continuity consists. I am content to accept the explanations of Mr. Russell on this point. A line is continuous when the series of points composing it is " compact " —that is, when between any two points there are an infinite number of other points. But I will add one observation. Of course the line is not composed *merely* of the infinitely numerous points : they must have a certain arrangement—as the word " between " shows.

Continuity will apply both to time and to space. It will be the substitute for existential unity, and the remedy for all discreteness. It will be, moreover, the basis of spatial and temporal relations.

Confusion, it seems to me, has been brought into the question of the nature of relations by not distinguishing *physical* from *logical* relations—relations of time and space from relations such as diversity, similarity, sameness, and the like. The main difference between them is that

physical relations hold between concrete things, while logical relations hold between the abstract characters of things. Thus the latter are essential, while the former are accidental. That is, if two characters are the same or similar or different, they could not, with their natures, be otherwise—the relations are "internal"; while two things which are distant from each other might equally well, so far as we can see, have been near, or two things which are successive might equally well have been simultaneous—there is no logical bond (though there may be a causal bond) between their characters and their position in time and space, and the relations are therefore "external."

These different sorts of relation bring their terms together into a unity in quite different senses. A logical relation, when it is most unifying—as in the case of sameness, or of similarity—involves a unity of *kind*. But a kind is not an existence: it is only a logical entity, a universal.

Hence this sort of relation cannot make the world existentially one.

Does a physical relation join its terms into a unity? It joins them into a *whole*: but the unity of a whole is formal—it is the unity of an arrangement. It is not only consistent with, but requires, the separate existence of the things arranged. Thus this sort of relation proves existential plurality rather than unity.

Real as the arrangement is, it may be questioned whether it has unity except as an idea before the mind. If this is so, a relation does not involve "an underlying unity and an inclusive whole," but only an underlying continuity and a synthetic idea.

I will set down my own conclusion about this matter. On the one hand, I have no wish to deny, but rather to assert, the reality of spatial and temporal order. On the other hand, it seems to me that this order is ultimate—that it cannot be explained by any deeper-lying unity, but can only be accepted.

A physical relation always separates as much as it unites. The relation of distance between two points in a line *signifies* that they are separated by an infinite number of intervening points. On the other hand—in virtue of the continuity—a physical relation always joins as well as separates. The two segments of a line separated by a point are in such a relation as to form one line. I cannot agree with M. Bergson, therefore, that if the time-line were divisible that would imply a rupture of its continuity. This view, taken with his idealistic identification of the object of primary memory with the datum, is, I think, responsible for his prolonging the past into the present. He absorbs the real duration into the datum (of primary memory)—in such wise that the past *is not left behind.* This is surely an error. Time is continuous, but it is not for that reason destitute of instants.

M. Bergson maintains that time and space are dissimilar, and that to treat them

as alike is to spatialize time. They are alike mathematically at least—if it were not so, motion would be impossible. Motion is the superposition of the continuity of time (with its infinite points separating any two points) upon the continuity of space.

Are the stretches or durations of time more real than the instants? Every duration is composed of shorter durations *ad infinitum*, which cannot exist simultaneously but only successively. Consequently nothing can occur in a duration as such. A duration is a limited series of instants, concreted into a whole by a mind which views them after or before the fact. In M. Bergson's happy phrase, it is time *tout fait*, not time *se faisant*. It can form a whole (something more than a continuum) only because the events have already or have not yet happened. It follows that events can happen only in instants. Verbally, of course, it takes an infinite series of these, however short, to make an event.

What, then, is an instant? It is a

point of time at once separating and joining the past and the future. The past is past, the future is yet to come, and all that exists is the indivisible present. There are not *three* times, past, present, and future, of equal reality, but only one, and the past and future are as such unreal. Reality is nothing but one ever-changing present.

I do not mean that the present contains change within itself—change, like duration, belongs to the *tout fait*, not to the *se faisant*—but that the future, when it comes, will be found changed. If we are to account for this, we must suppose that present reality is in its nature Force or Cause. It is not change, but the principle or source of change.

I know not what physicists will say to this, but it seems to me to follow from our analysis of time. For physics it may be necessary to assume that in the points of space there are points of aether which continue identical through time.

I see no reason to think that the past is preserved, except in memory. As

memory lapses, it seems to me to become as completely non-existent as the future.

Instead, then, of time being more real than space, there is a sense in which space is more real than time : or rather in which matter is more real than duration.

Turning now to space, it might seem that matter (or the aether) exists in the extensions and not in the points. But Leibniz has argued cogently that whatever is extended is a multitude, and that a multitude presupposes units ; and since no extension however short can be a unit —for the same reason that no duration can happen at once—the necessary result is that the units of matter must be points.

Recall that a point unites as well as separates ; that in its very nature it involves position ; and you will see that it is no more inconsistent with continuity than an instant of time. It can very well bind extensions together. A point, since it must have position, is unthinkable apart from a line. And a line is unthinkable

apart from a plane, and a plane apart from a solid ; they are all simply abstractions from space. Just as space, in its turn, is an abstraction from the aether, which alone is what we perceive.

The parallelism of space and time, then, is complete; and the things which should not be put on the same plane are not time and space, but matter and temporo-spatial order. There is a sense in which only matter *exists*, and order is of the nature of truth. For only matter is Force.

But matter is not only Force, it is also Light. I do not mean physical light, but the light that lighteth every man that cometh into the world—the light of nature, or Sense. We denied sensations to be experien*ced*, but we did not deny them to be experience, that is (if the metaphor may be pardoned), to be full of inner light. This is a hidden light, indeed ; it cannot be directly seen from a distance—no man can feel another's feelings. But, because unseen to the outer eye, it does

not less truly exist ; and we have an inner eye (I refer to introspection) that makes us more directly aware of it.

This " luminosity," when the sensation is used for cognition, becomes the givenness of the object. Thus givenness is not an intuition of things in themselves — we cannot see independently of the light-rays —but a contemplation of things by means of ideas.

It has been the special distinction of modern philosophy to suppose that the ideas were not ideas of the things : from which, by a natural reaction, philosophers have of late swung to the opposite extreme of supposing that we can contemplate things without ideas. Language should have shown them that an idea is necessarily the idea of a thing—and not least so when the thing is real. But they have been prevented from seeing this by the fact that they had no belief.

*" Ins Innre der Natur*
*Dringt kein erschaffner Geist.*
*Glückselig, wem sie nur*
*Die äussre Schale weist."*

*Das hör' ich seit Jahren wiederholen,*
*Ich fluche drauf, aber verstohlen ;*
*Sage mir tausend tausend Male :*
*Alles gibt sie reichlich und gern ;*
*Natur hat weder Kern*
*Noch Schale,*
*Alles ist sie mit Einem Male ;*
*Dich prüfe du nur allermeist,*
*Ob du Kern oder Schale seist.*

*Ihr folget falscher Spur—*
*Denkt nicht, wir scherzen !*
*Ist nicht der Kern der Natur*
*Menschen im Herzen ?*

## CHAPTER III

# Contemplation

"THERE are some philosophers," says Hume, "who imagine we are every moment intimately conscious of what we call our Self; that we feel its existence and its continuance in existence. . . ." But he goes on, *mirabile dictu*, to refuse to identify the self with "pain and pleasure, grief and joy, passions and sensations"—clearly because he failed to distinguish between these and "impressions" (the impressions we have of them or the impressions they give us of the external world)—and thus, in James's accurate phrase, to pour out the child with the bath. And so he concludes that "consequently there is no such idea."

# A Theory of Knowledge

I hope the preceding chapters have made it clear that we have an idea of self, and what that idea is. Some philosophers tell us, indeed, that the idea of self is the idea of our ideas; or the idea of the awareness by which we have ideas. And from that basis they deduce, by the most perfect mathematical logic, that Nature is only a mental construction, a conception of classes of things, and that they themselves are essentially spirits, at least momentary and atomic ones. These philosophers may perhaps perceive clearly that that is what they mean by themselves. All I can allow them is that they may be right as well as I, and that we are essentially different in this particular.

But setting aside some mathematical logicians of this kind, I venture to affirm of the rest of mankind that they are *animals*: that they have selves which are inwardly luminous, and consist of immediate experience. When Gassendi addresses Descartes as *O esprit*, and Descartes retorts by calling him *O chair*, I confess that my

sympathies are with Gassendi ; for I think that the flesh is not as fleshly as it seems.

It is none the less true that we live in a world of matter. Time and space part us from other selves, and also from inanimate objects. In this incurable separation of objects from the percipient, how shall they be known ? We grasp at the idea of an immediate intuition ; but Nature could not give it us, for we are dust. What she has done is to permit us, by means of sense-organs, to picture external things, and to endow us with a natural trust that those pictures are true. We believe upon instinct, which is the guide of life to every healthy animal.

But when reason awakes, methodic doubt asks its question ; and finding no immediate answer, contents itself temporarily with the given. Things are ideas. Their causal operation, which should feelingly convince us that they are, is interpreted as only our irrational habit (as if instinct could be anything else !).

And straightway, turning upon itself, the ego declares that it too is only an idea—and, what is more, a false one. Or, *if* it exists, its being consists only in a spinning of ideas.

It is now the turn of some person with a little more instinct for reality, but still caught in the net, to aver that these ideas are not ideas at all, but things, and capable of existing when no one is perceiving them. Since things when they are perceived are thus perceived without consciousness; they can wander off at their own sweet will, and still be *percepta*. Consciousness accordingly does not exist; bodies directly perceive each other. And this converse of material things with material things is still called experience.

Has not the time come for these bodies to wake up—for these too fleshly philosophers to admit that man is, after all, a living soul?

The function by which we hold converse with Reality—a truly spiritual function,

since apprehension is of its essence—I shall here call *contemplation.*

Contemplation has two forms, according as we are in direct or in indirect relation to the truth: the one is cognition, the other thought or reflection. The method of thought is logic; but logic requires premises, and it is cognition that furnishes them. No truths, not even those of mathematics or logic itself, have any other source than cognition.

Cognition is a matter of perception or of primary memory; the two being so intimately conjoined that it is difficult to dissociate them. Memory proper, secondary memory, is already a kind of reflection: it is the re-viewing, in the mirror of a later state, of that which has before been viewed in cognition. Association of ideas (which means understanding, not the mere juxtaposition of images) is even more reflective: in it we re-view the relations of things, as in secondary memory we re-view the things. Reflection, in the everyday sense, is marshalling the data

re-viewed according to their similarities, and perhaps abstracting the similarities; but it is still essentially a re-viewing.

The science of these similarities, as such, is logic; it is an affair of classes. But the fact that these similarities can be abstracted, and that they are at several removes from concrete things, should not blind us to the further fact that whatever is true of them is true because it was true of real things; or make us fancy that logic, because it is so high up in the air, is a purely aerial science, and needs no foundations in experience.

What, then, are the foundations of logic in experience?

The indispensable foundation of logic, that is to hold good of anything, is the belief in real things. We share this belief with the animals; or rather some of us do. All men act as if they believed in matter: as you may see by observing their performances at the table and at bed-time. If pots and pans were ideas,

they would not exist when unseen and untouched, nor last except by miracle from one perception to another. And everybody has an irresistible belief that they do last.

This belief implies that they are other than our act of perceiving them, and separate from that act, when they *are* given ; and it is irrational and inconsistent to hold to the continuous existence of material things, after you have identified them with data.

But reflection upon this curious state of things—this givenness and yet not givenness, this irremediable separateness—leads to doubt of the methodic kind; and the question now is, what satisfactions can be offered to the critical intellect.

Now in truth, in a situation like this, the utmost that can be done is to quiet the mind, by showing that there are no good reasons to the contrary. There are no reasons for believing ; but also there are no reasons against believing ; and therefore our course may be left to the operation of instinct.

Such is not, however, the path taken by the idealist. Caught fast in the illusion that the datum is the object, and perceiving that mere givenness is not knowledge, he gives over the entire function of knowing to thought. He no longer sees and touches real things, but only thinks them.

What, in the language of thought, can believing mean? Says Hume in the Appendix to his *Treatise*: "Either the belief is some new idea, such as that of *reality* or *existence* . . ." When you cease to believe, the thing believed in of course becomes a mere idea. There is no such thing as reality or existence, but only the ideas of reality or existence exist.

So a contemporary philosopher, I hear, was accustomed to say that he did not know what "existence" meant. It means the external counterpart of belief. It is that, precisely, which cannot be taken up into the mere idea—but without which the latter would be the idea of nothing. Hence it cannot be educed from ideas, or proved by means of them.

It is folly, then, to ask a reason for believing—in matter. You might as well ask a reason for eating or for going to sleep. Human life rests on instinct, and is deranged when the normal operation of instinct is arrested. And it is not a rational philosophy but an irrational one, a philosophy of mere reasoning, that would remove the foundations on which reason rests.

Where belief exists, doubt is always possible; you can suspend this animal function, just as you can temporarily cease to breathe. There is a difference, however, between the two cases, in that the non-breather is rapidly recalled to his senses by an organic need, while the sceptic may doubt in every moment of philosophy and believe in the intervals of everyday life, and, through the confusion of objects with data, cheat himself into believing that his doubts are as genuine as if he acted upon them. If apprehension involves motor activity, and belief belongs to the

active side of our nature, as our theory teaches, genuine doubt would be doubt that issued in action. What would this action be? It would be of a negative sort, and consist in ceasing to perform all those acts which imply the existence of objects: a procedure that evidently would carry one far. But modern doubters do not really doubt.

They theorize, however, as if they did; and it will be our duty, shortly, to review their sceptical theories. These are the maladies to which reflection is exposed when it departs from the solid basis of common sense. Let us prepare ourselves for studying them (lest we too should catch the contagion) by noting the legitimate satisfactions which healthy thought about existence and reality can offer to the mind.

The question is twofold: what reasons are there for thinking that things really exist (this we have already discussed), and what reasons are there for thinking that

perception, or introspection, shows them to us as they really are?

As regards this second question, if the datum is brought before us by the use of the (visual) sensation as a sign; and if the space in the sensation, and consequently the space in the datum, is the space of reality; it would follow—on the assumption (which is that of everyday life) that space is everywhere the same—that perception gives us adequate knowledge of this primary quality of the object. How, then, do these matters stand?

The space in the datum is *not* the same space as that in the sensation, in so far as (1) distance is not contained in the latter, (2) the magnitude of the datum (*i.e.* of the object as viewed) is variable with the distance, whereas the magnitude of the sensation is fixed. On the other hand, space in the sensation is the same kind of thing as space in the datum. And our reasoning is therefore valid, on the condition that there is any space in the sensation at all.

This throws us back from perception upon introspection. It is perfectly obvious that there is space in the (visual) sensation *as an introspective datum*: but is the real thing, the sensation itself, which this datum enables us to cognize, spatial? Is there any reason for supposing that the sensation, the thing itself, is *in any respect like* its appearance to the mind?

The possibility suddenly opens itself up of a complete disparity between datum and thing in itself, in introspection and consequently in perception. And modern thought has been quick to seize upon this possibility, and by what is called "agnosticism," to justify its preference for ideas.

The answer, I think, is that the identity of the sensation which is the object of introspection and the sensation which is the vehicle of the introspective datum guarantees the adequacy of this datum as a rendering of the real thing. In other words, the sensation cognized and the sensation that cognizes are the same sensation.

This guarantees the objective reality of space ; but it also guarantees the objective reality of that fundamental nature, known as feeling or immediate experience, which is the common element in all our sensations. And this, to my mind, is the ultimate rational basis of the validity of knowledge.

Agnosticism, then, must be replaced by Gnosticism, as Scepticism was replaced by Belief.

And again, I hasten to add that this reasoning is not ultimately cogent, or rather coercive, for the reason that it unfortunately has to rest on premises. In the end we have to fall back on Belief, to maintain the value of knowledge as much as to maintain the fact of it.

The view to which we are thus led is the strange one that the self, or what we are accustomed loosely to call the " mind," [1] is extended in three dimensions of space.

" The mind," said Hume, " is a kind

[1] " Mind " is better used, however, for the self as including its intellectual functions.

of theatre, where several perceptions successively make their appearance. . . . There is properly no *simplicity* in it at one time, nor *identity* in different . . ." And he adds: "The comparison of the theatre must not mislead us. They are the successive perceptions only, that constitute the mind." In this he was not wrong, if by perceptions we mean apprehended data; or if by the term we mean sensations, then it is true that it is the successive sensations only that constitute the *self*. But when he goes on to say, "Nor have we the most distant notion of the place where these scenes are represented, or of the materials of which it is composed," one may venture to differ with him. The materials are sensations or immediate experiences, and the place is the world. Only a sceptic has no conception of these things.

A theatre is all very well for special occasions, when you want to look on and not to act; but for ordinary living the better dwelling-place for the self would be a house. Let it have a number of rooms,

corresponding to the number of the senses; and let the occupant not be continually engaged merely in contemplating the pictures on the walls, but a great part of the time be looking out of the windows of the front room—as would be very necessary if he had enemies lurking in the neighbourhood, as well as friends to expect, and had to keep a sharp watch in order to avoid unpleasant surprises. You are to understand that his vision of things without is made possible by the light that streams in at the windows, and not due solely to the interior means of illumination. The difficulty is as to the self passing from room to room. But this is a very large self, who lives in all the main rooms at once; though some of them are often left dark or with lights turned low, while the back parts of the house are never visited.

This is an attempt to express in terms of vision a situation which includes vision as one of its parts, and must in the end break down. But — allowing for the differences—it may serve to make clear

the conception of a tridimensional self, assailed by stimuli from without that affect it because it feels, and that give it perceptions of external things because of its attention.

So that, far from having no idea of "the place where these scenes are enacted," we know quite well that we live in the midst of a partly hostile world—or, if you prefer the simile of the theatre, that we own a private box with an ante-room or two, and that the rest of the theatre is mere environment. If we look at things in this modest way, the simile of the theatre will not deceive us.

Our ideas, as contrasted with our perceptions, *are* a sort of (private) theatre, where the most extravagant scenes are sometimes presented. Hume was perhaps not sufficiently alive to the difference between the two.

Such, then, is, according to our theory, the basis of valid thinking. Now thought involves a detaching of the fact known in

cognition from the present instance, and an application of it to other instances—it involves *generalization.* Hence it is easy (for an idealist) to suppose that this detaching and extension is the true process of knowing; and to deny cognition or direct experience to be knowing. But it is perverse to deny the name of knowledge to the process in which knowledge is first acquired. We must therefore distinguish sharply between knowledge of particular instances by acquaintance, and knowledge of instances in general by inference therefrom — between original and reflective knowing; and make clear to ourselves that in the latter what is known is not mere data (or "sensations") but, still, real things, though these things are now future or eventual.

It should next be noted that trustful cognition supplies both the terms and the relations which are used in thought—since we see, for example, the distance or the relative magnitude of things as much as we see the things. To *express* what we

see, to be sure, thought and language are necessary ; but it is not thought, any more than it is language, that originally apprehends what is expressed.

From a mere datum, simply as a datum, nothing can be inferred : from a datum taken as a revelation of one part of a real world, inferences can be drawn to other parts of that world. In drawing them, we rely throughout on the instinct which prompts us to assume a real and continuous world, as well as on the habits of association which past experience has taught us to regard as representing the connections in that world. Thus thought, no less than cognition, presupposes the body with its instincts.

After this *exposé* of the bases of logic in theory of knowledge, we can be brief with the maladies of thought, which are not affections of logic proper but only of logic as a substitute for metaphysics.

When real things are replaced by ideas, relations between ideas acquire an exist-

ential value; and different theories of the universe emerge, according as relations are regarded as more important than terms (so that all relations become "internal," or constitutive of their terms), or terms as more important than relations (so that all relations are "external"); or, again, according as the intellect is regarded as the principle of their union into the proposition, or this union is attributed to the will. These four diseases may be called respectively *universalism*, *atomism*, *intellectualism*, and *voluntarism*. They all are varieties of one fundamental ailment, *scepticism*, or the disbelief in real things.

1. Universalism is the malady of the idealistic monists. They attribute an exaggerated value to what is general, and even conceive generality as identical with existence. Plato was the first great universalist, and Hegel the last. For Hegel and his followers, every relation is "an underlying unity and an inclusive whole." The self has unity in order that it may think relations. The transcendence of

knowledge is explained by a universal uniting the object and (not the thought of it, but) the thinker, apparently into a single existence; as if you could not think of a thing and still keep separate from it. The tangle into which this gets one, when one comes to consider the relation between one's self and the rest of immediate experience, needs no insisting on: we are alternately told that (the rest of) the world is "outside" us, and that we are one with it; that persons exclude each other, and that they form a unity. The monist is forbidden, on principle, to recognize that externality of persons to persons and of things to things which is the patent fact. And this because — besides being an idealist—he has confused continuity with unity.

To distinguish these two is the first condition of cure. But the idealism needs quite as urgently to be corrected. One is surprised, in looking over text-books of logic, to find so much about propositions and so little about terms. This is simply

German idealism : if single data reveal no reality, reality must lie in relations, and consist in the fact that the propositions asserting them are something we are "obliged to think." The curious thing is that, while perceiving this obligation, the idealists imagine that it comes from inside them ; in consistency with their principles, they recognize the objective constraint, but deny the constraining object.

2. Atomism, as a metaphysical doctrine, represents a reaction to the opposite extreme. It is now the terms that are magnified, the relations that are minimized and externalized. Continuity is recognized in name, but abolished in fact ; for the only existences admitted are separate data, and the temporal and spatial relations that should join things into a world are conceived as only ideas in the mind.

The consequence of these beginnings is that everything becomes "loose and separate" ; so loose and separate that the very existence of a Universe is denied. And the human subject, far from being

a portion of immediate experience capable of conducting a synthesis, flies apart into a vast number of *views*—between which, again, there is no real connection but only a connection thought of by the mind. Material objects are composed of the same views that compose the self, only differently arranged. An electron is no single thing—it is a sum of the infinite number of effects which it produces at other points than that at which it is.

Meanwhile this atomism does valuable service by insisting on the *particularity* of data. If its particulars were only facts —in a world in which things are *done*, and not in the realm of essence where nothing ever happens—this aspect of the doctrine would be true. But, unbeknown to himself, the neo-realist is still an idealist: despite his common-sense conviction that things exist continuously, the things he has his eye on are the merest visions, for they are data, which we have seen to be fabrications of the intellect. They are such stuff as dreams are made of, except as realized in things.

This brings us to the third disease—for the atomist is often at the same time an intellectualist.

3. Intellectualism is the view that objects are not even ideas of the primary kind, that is, data of perception, but are constructions made by manipulating these ideas and asserting relations between them. It is the advance made by the post-Kantians upon Berkeley and Hume. It is also the tardy revenge taken by reality for the original departure from common sense; since actual living with ideas proves that they are not objects, and particularly not the objects of physical science, and, if things are not real, they can only be fabrications spun out of sense-data, or, to designate a German thing by a German word, *Hirngespinnste*. The fact that these *Hirngespinnste* are inevitable and logical, that they are something we are "obliged to think," in no way removes them from the category of unrealities, since the same is true of the delusions of the mad.

Thus the discoveries of modern science,

which are the surest and most exact knowledge humanity possesses, become (in theory —oh, not in practice) divagations, while the truth of things is found in dumb sense : and that sense not the immediate experience that constitutes the external thing, but the immediate experience that constitutes *me*. This is German Egotism. It is, as will be seen, the complete inversion of Reality —it is the world turned inside out like a glove.

And then, in mitigation of this view, we are told that what urges us to *act* as if all these things were not true—to behave as if there were objects outside us, and as if they had a proper force that deserved our respect—is " utility," or the needs of practical life. Might it not be in the strict spirit of this philosophy to carry the principle a little farther, and reason that it is useful and necessary to practical life to consider that this philosophy is not true ?

4. Every perversion produces a reaction, and the reaction induced by intellectualism — particularly in America — has been

towards the exclusive recognition of the practical. Utility is to be henceforth the sole test of thought and action. There are no real things, distinct from sensations; the world is wholly a creation of the judgement; nothing exists apart from this judgement—not even the past, when that is what we judge about—except (for this is useful) the future, as a means of verification. If you should chance, in that future, to ask yourself what it was you were verifying, I suppose the appeal would be to a more distant future; and so on. Meanwhile the content, the act, and the subject of your judgement are all contained, without distinction, within your present moment of sense.

The mere statement of this view shows sufficiently how inarticulate and dumbly sensuous modern philosophy has now become. The climax of the movement is reached in "behaviourism," or the theory that we have no minds but are simply bodies moving. All the resources of modern science are employed to prove

how true it is that we are bodies moving, and how sufficient that hypothesis is to explain everything about us. And it does explain everything but our feelings—everything but ourselves.

If—to point the lesson of this review—there is to be such a thing as contemplation, raising us above the mere feelings that form the substance of the body and taking us out of ourselves, we must seek it in the use of our minds, in apprehension and belief. It is by believing what we apprehend that we contemplate Reality originally, in perception; it is by continuing, in reflection, this healthy belief that we shall be led to the contemplation of Truth.

The various logics are all one-sidednesses—due to an over-insistence on some one aspect of the facts. Universals, or particulars, or relations, or sensible terms, are magnified into an importance out of all proportion to their merits. It takes all kinds of logical elements to make a world.

*Ordiamur igitur a sensibus : quorum ita clara judicia et certa sunt, ut si optio naturae nostrae detur, et ab ea deus aliqui requirat, contentane sit suis integris incorruptisque sensibus, an postulet melius aliquid ; non videam, quid quaerat amplius. Neque vero hoc loco exspectandum est, dum de remo inflexo, aut de collo columbae respondeam : non enim is sum, qui, quidquid videtur, tale dicam esse, quale videatur.*

*Nam quum vim, quae esset in sensibus, explicabamus, simul illud aperiebatur, comprehendi multa et percipi sensibus ; quod fieri sine assensione non potest.*

## CHAPTER IV

# Life

THE reader will wish to know the bearing of this theory of knowledge on life and conduct.

We are not merely contemplative but active beings, and one of the greatest faults of modern philosophy has lain in ignoring or subordinating this fact. Our doctrine, according to which there is no cognition or consciousness but by grace of an active tendency—in such wise that knowing and willing are two sides of one occurrence—promises both to redress the balance and to hold it even.

A new day has dawned for psychology with the recognition that instinct is more fundamental in the mind than intelligence, and the true principle of mental division.

And with that, a host of queer phenomena—hysterias, alterations of personality, splittings—that were riddles to previous psychologists, have become intelligible and, what is more important, curable. Our philosophy is in complete accord with this development.

A fundamental conception in the explanation of what we may call Freudian phenomena is that of the "complex." What is a complex? It is a group of ideas bound together by synthesis and possessing a common motor tendency. What has bound them together? The motor tendency. A fact has been discovered to be the sign of another fact, to which the motor tendency was instinctively attached. The new fact has thus become equally interesting and exciting with the old. It irresistibly commands the attention.

Now attention, as we have seen, is the heightening of a sensation; but what we have yet to note is the motor significance of this heightening. Psychologists became convinced that there were no such

things as "feelings of innervation"—but it was because they looked for these feelings as separate states, on a footing with and subsequent to visual and other sensations: in truth, the heightening, in which attention introspectively consists, *is* the feeling of innervation. It is the sense of the incoming nerve-currents gripping us and preparing to elicit a movement.

And we do this for one set of impressions rather than for another, because the former set *interests* us—which means, appeals to a congenital tendency, or *instinct*. Different things interest different people; the balance of instincts in particular human beings (and nations!) is variously adjusted, and what is one man's food (to put it rather strongly) is another man's poison. The instincts clash—particularly the personal and the social instincts—and through their clashing syntheses originate and entail complexes, which prove particularly poisonous to individuals, even disabling them for life or rending their minds asunder.

Now the cure of these morbid conditions

lies in intelligence : primarily on the part of the sufferer, but secondarily, and as a means thereto, on the part of his discerning physician. The importance of the psychic element in medicine has been overlooked, owing to the intellectualistic and materialistic tendencies of the age, but, fortunately for suffering humanity, is beginning to be recognized.

A Freudian complex is a group of sensations tied up badly by the synthetic unity of apprehension, in such wise that the response is an inappropriate one. The ill of the complex is in its persistence, and this is the work of what we loosely call "memory," but what might better be called registration and subsequent retention. In a word, complexes are (bad) habits.

It may not be superfluous to say a word here as to the relation of our theory to habit. Habit seems to involve the materializing of intelligence—for we can form the most intelligent and exquisite habits—and so to contradict the definition of substance

as feeling. But when we defined substance as feeling, we did not mean human feeling exclusively—as if all Nature were continually weeping and rejoicing. Matter is now said to be composed of electrons, and electrons are thought to be not improbably whirlpools in the aether: if, then, both the nerve-impulses and the channels through which they course can consist (for the physicist) of moving aether, they can both consist (for the metaphysician) of points of feeling that are points of force.

The next thing in life to which our theory has an obvious relation is the sense of beauty: for there would be no such thing as beauty if the self were not composed of sense.

As comfort is the exteriorization of the pleasure caused in us by the harmonious working of our organs, so that we speak of a comfortable room or of a comfortable bed, so beauty is the exteriorization of the pleasures due to the harmonious working of the nervous system itself, particularly

in its higher activities of sight, hearing, and imagination.

Music may be described as a pattern of sounds that please us by their harmony. In listening to it, there is something that may be called "expectation" and "fulfilment"; but it is not the looking back or looking forward that pleases us, still less the perception of relations: the pleasure lies in the successive states of sound, formed as these are by the after-effects of past notes overlapping upon and blending with present ones, and inheres in them partly because they are nicely adapted to the capacities of the organ, and employ without exhausting it, partly because the attention is prepared for them by the rhythm and the recurrences.

Rhythm is an alternation of changes such that the nervous system finds it easy to execute it—executes it with a minimum of thwartings and interferings. The recurrences must be with modifications, that stimulate the attention and maintain the interest.

Keenly pleasant as are the sounds, the synthesis of them gives rise to a new beauty — a mysterious *meaning*. Is this produced by direct physical action, or by suggestion? Doubtless by both. Through its rhythm, pace, and accent music calls forth in us the bodily reverberations characteristic of the different emotions; through its inflections and cadences, it awakens faint memories drawn from all our past experience with sounds, from the emotions they have aroused in us, and the emotions we have expressed by their means—and were it not for these echoes of universal emotional experience, by which feeling divorced from thought is made an object of contemplation, it would not be the enthralling thing it is.

Poetry, apart from the noble meaning, is of course word-music. Here, too, there is a pattern with variations. Rhythm plays its fundamental part; and its effect is heightened by alliteration and assonance. The principle of these seems to be that a nervous synthesis—perhaps the synthesis

of auditory images with vocal movements —is more easily executed again, while still fresh in the (primary) memory, than a new synthesis : hence the familiar phenomenon of the recurrence of a vowel or consonant after an interval, and its recurrence again after a slightly longer interval —in what might be called a triplet. The rhythmic recurrence of alliteration and assonance together is rhyme.

But what would poetry be without its images, and without its echoes of our emotional experience ? This has left in us tendencies to welcome and reject, to assent or dissent, and in proportion as what is said suggests a charming image or appeals to a profound tendency of reflection, it finds our attention predisposed in its favour, and takes us whither we would gladly go.

The pleasure of poetry is thus a highly compound one : each added joy—the rhythm, the alliteration and assonance, the smoothness of the vocalization, the appropriateness of the diction, and above all,

the nobility or charm of the thought—pushes the sensitive nerve, till jointly they awaken in the mind a rare and exquisite delight.

Is not architecture a sort of visual music—in which the proportion of lines takes the place of the harmony of simultaneous sounds, while recurrences and a certain rhythm make synthesis easy as the eye passes from point to point? It seems to me that facilitated vision is a main part of the secret of architectural beauty, and that to lay all the weight on suggestions of movement, pressure, and strain, important as these are, is to forget that our enjoyment of it is, after all, primarily a pleasure of seeing.

If beauty is essential to art, and depends upon feeling or sense, art cannot be mere expression; though it is natural that a philosophy which believes only in ideas, and explains everything by ideas, should think so. There must be agreeable internal sensations to inspire and justify the

expression : otherwise there is no beauty, and only the empty simulacrum of art.

Things, then, are not beautiful in themselves. They are beautiful only as appearances, and their beauty is a reflection of our own inner life.

It is the inner life of sense in us that makes us judge things to be good or bad. A good breakfast, for instance, and still more a good egg, is so, evidently, relatively to our sensation ; and I see no reason why a good and a bad man should not have been originally distinguished in the same way. A good man is a man who does me good, a bad man one who hurts my feelings or thwarts my impulses. Of course I am also a bad man if I hurt or thwart his.

This suggests an important ethical truth: that, as it takes an object and an auditor, spectator, or reader for anything to be beautiful or ugly, so goodness and badness imply two persons, an agent and (as we may call him) a patient. In other words,

morality is essentially a relation of human beings to one another. As Kant would have put it, society is the condition of the possibility of this form of experience.

Have we relations of society with Nature? Of a kind. Nature is perfect rectitude (of a non-moral sort): the straightness of straight lines is the type of her behaviour. But Nature is inhuman, and our true associates are our fellow-men.

Unfortunately too many of them have something of the inhumanity of Nature; and here is where the other side of human nature—intelligence—comes in. If intelligence, as we saw, can resolve Freudian complexes, perhaps it may resolve those other complexes, such as nationality, sovereignty, imperialism, that make men political enemies. Good will, by comparison, good and necessary as it is, seems a drug in the market; and if the situation is to be saved, it must be by intelligence. Intelligence is profitable for all things (I need not enumerate them); nor

is this a misquotation, for intelligence *is* godliness.

What is chiefly needed for practical life is an intelligence of the instincts and needs of other people (of *all* the people concerned); a complete openness to the immediate experience that constitutes *them* —as great as our openness to that which constitutes us. An impetuous doing, without intelligence, is the least moral of things. Why should we do without our minds?

Nor is a man of sense necessarily without conscience. What is conscience? It is the awareness of the harmony (or disharmony) of our instincts, especially of the personal with the social ones; without a perfect synthesis of which we cannot be happy. And this defines happiness, which (for all, and not for merely one) is the goal of morals.

The reader will wish to know the bearing of our doctrine on free will.

It seems to, and I think does, involve

determinism. But we are subject in this matter to a double illusion : that determinism is inconsistent with the *efficacy* of the self, and that it precludes *novelty*. It can be shown that neither of these things is true.

As to the first, the view that the self is composed of point-instants of force, which are a part of the forces of Nature, far from being inimical to efficacy, ensures it. The identification of the self with a pattern of processes in the nervous system implies interaction. The self, then, is no idle spectator of material events (it is only awareness as such that is idle), but an active participant, a combatant whose blows are sure to count.

But what if all this is predetermined by the past ? The question implies that the combatant (for you cannot be a mere philosopher) is afraid his blows will *not* count, but that the past will determine the future over his head. A groundless fear ! For the self, with its thoughts, feelings and desires, being present, is in

the line of advance, and the past cannot lead to the future except through it. It is secure of its determining force. And what a strange fancy, that the past and future—which, as we have seen, do not exist—can vie for one moment with the present, which is real! The critic of determinism, in considering the problem of action, has inadvertently omitted himself from the universe.

The whole thing is an airy illusion, and rests on the sophistical assumption that determination, a relation between two instants of time, is more real than the instants. The instants are the reality, and each instant is free. It is, to be sure, what it is. Thus the instantaneity of the present saves us both from fate and from chance.

It seems to me that, with this, the sting of determinism is completely removed. And how many arguments there are on the other side! First, what have we to hope for from pure chance? Second, should we wish to escape from all determination? If you listen to the wise

words of a superior, that is determination ; if you give good advice to a child, that is determination. The essential thing is not that we should be free from all determination, even by reason and conscience—even by divine guidance (in whatever sense that may exist)—but that we should be free from our passions : and for these, as we have seen, the true antidote is intelligence.

There is apt to remain, however, a certain moral discomfort, owing to the fact that causation rules so unrestrictedly. It is felt that novelty is excluded, and that life has lost its interest and freshness. This, I believe, is another illusion, to which our theory affords an excellent answer.

Let us consider first the remedies at which philosophers have grasped in their distress. While admitting that the universe generally is ruled by cause and effect, and that the operation of these is mathematical, it has been hoped that causation only expresses the average and statistical

form of the movement of Nature, and that deep down she is capricious and indeterminate like any other woman. It may be suspected that the capriciousness of women is due rather to the complexity and delicacy of their instincts than to a complete absence of motive ; and the apparent capriciousness of Nature is open to the same explanation—though this would deprive us of our refuge from determinism.

The uniformity of Nature, as has been lately pointed out, is closely connected with the uniformity of space and time, which so far as common sense is able to judge are alike in all their parts ; and it is important as a basis of human life that it should be so. Recent discoveries concerning the atom do not, I think, tend to weaken this probability.

But wait ! there is another possibility. Space and time are only the framework of Reality ; you and I are not made of inches and minutes (or our whole philosophy is false). There is, then, inside this framework, a complex distribution of

forces which spells *variety*. Now, since the points and instants are infinite, the possible recombinations of the forces of Nature are infinite ; and no lapse of time can exhaust them. We may, then, confidently look forward to to-morrow with the expectation that it will not be like to-day.

To sum up : where the choice lies between irrationalism and fatalism, the path of reason is in the middle. The " everlasting return " of Nietzsche is rigid fatalism. Who, if asked whether he wished to live his life (the greater part of it) over again, would not answer with Leopardi : For God's sake, No ! This is Scylla. There is in us an inextinguishable thirst for Novelty. This might be gratified, without indeterminism—which is Charybdis —in case the variety of the Universe was infinite, like time and space. Then there would never be any unwished-for repetition of the old. Then Nature would be truly Creative. Time could not wither nor custom stale her infinite diversity.

(And this, moreover, would justify

Hume's distinction between knowledge of mathematical principles and knowledge of matters of fact.)

Here is the Novelty that keeps the Universe fresh and young. And this novelty is to a considerable part—the part that most concerns us—placed in human hands. There is nothing that a man's instincts suggest, and his powers seem to justify, for which he may not reasonably hope. And what is true of the individual is true of humanity.

See now how useful are the infinitely great and the infinitely small. The instantaneity of time saved us from fate; the infinite variety of things rescues us from dullness. It remains only that we should be saved from an overweening opinion of our selves: and this, I think, is promised by another aspect of infinity.

It follows from infinity, taken with our doctrine of cognition, that there is nothing either small or great but thinking makes it so. In other words, magnitude is

relative. It may at times seem to us curious that we should be perched precisely in the middle of time and space, and precisely midway between the very great and the very small things: but this is an effect of perspective. Nor are we bigger feelingly than selves that seem very small to us: the microbe is composed of an infinity of parts, each of which is a feeling —what more are we? There is therefore no ground for supposing that an elephant with the toothache suffers a pain proportionate to his bulk, or that a microbe in the like case would suffer less.

This, I think, is the true sense of Leibniz's doctrine of the ponds full of fishes and the gardens full of plants. There is no part of this strange universe, however small or however large, that is not capable of taking on the form of a synthetic self. But this is only a capacity, not an actuality; and actual selves, with the infinite variety of complexities that are open to them, are to be judged on their merits. Here is a thought that may

enable us to recover some of our self-respect in the presence of the microbe, and even of the elephant.

The detachment of essences from things, of the "what" from the "that," seems to be purely the work of human intelligence, exercising its power of abstraction. Infinite, once more, is the variety of these *Hirngespinnste*, these ideas, which the human mind can frame, by recombining in reflection the data given it in sense; but there seems no reason to assume that these possibilities are anywise realities, except as embodied in the time, space, and matter or feeling which form the frame of Nature. Mathematics of course are extra-human and *a priori*; but they are truths about the characters of time and space and the relations between their parts: mathematical implication falling under the general head of the uniformity of time and space, as logical implication falls under the general head of the identities and differences of the meanings of language.

Mind, on our theory, is of course purely a result of organization. A portion of immediate experience becomes a subject and is so by an external relation, not in itself; just as, once there is a subject, another portion of immediate experience may become its object, and is so then by an external relation, but in itself is only a real thing.

The ultimate elements of the structure of Nature are thus time, space, and feeling which is force. And between time and space on the one hand, and feeling which is force on the other, there is an ultimate unlikeness of kind, in that each is not the other, and yet is necessary to the other. To use single terms for them, they are the *matter* of the Universe and its *order*: two unlike things, though both in a sense exist. Apart from these things there is nothing.

These two aspects of Existence are equally necessary to life. Without the matter of feeling, living beings would be senseless automata. If feeling were not

force, there would be duration but no change or history. In the absence of time and space, existence would be without form and void—or would not be at all.

But the human mind cannot look out upon things except from its own point of view, and to it feeling and force are Reality, while time and space are Truth. United, they are the standard for human thought, and there is no salvation for it except in correspondence with them. When we think of the infinite variety of things, and that each minutest item is animate, Truth and Reality seem to blaze with a splendour like the sun.

*Hinaufgeschaut!—Der Berge Gipfelriesen*
*Verkünden schon die feierlichste Stunde;*
*Sie dürfen früh des ewigen Lichts geniessen,*
*Das später sich zu uns hernieder wendet.*
*Jetzt zu der Alpe grüngesenkten Wiesen*
*Wird neuer Glanz und Deutlichkeit gespendet,*
*Und stufenweis herab ist es gelungen—*
*Sie tritt hervor!—und, leider schon geblendet,*
*Kehr' ich mich weg, vom Augenschmerz durchdrungen.*

*So ist es also, wenn ein sehnend Hoffen*
*Dem höchsten Wunsch sich traulich zugerungen,*
*Erfüllingspforten findet flügeloffen;*
*Nun aber bricht aus jenen ewigen Gründen*
*Ein Flammenübermass, wir stehn betroffen:*
*Des Lebens Fackel wollten wir entzünden,*
*Ein Feuermeer umschlingt uns, welch ein Feuer!*
*Ist's Lieb? ist's Hass? die glühend uns umwinden,*
*Mit Schmerz' und Freuden wechselnd ungeheuer,*
*So dass wir nieder nach der Erde blicken,*
*Zu bergen uns in jugendlichstem Schleier.*

*So bleibe denn die Sonne mir im Rücken!*
*Der Wassersturz, das Felsenriff durchbrausend,*
*Ihn schau' ich an mit wachsendem Entzücken.*
*Von Sturz zu Sturzen wälzt er jetzt in tausend,*
*Dann abertausend Strömen sich ergiessend,*
*Hoch in die Lüfte Schaum an Schäume sausend.*
*Allein wie herrlich, diesem Sturm erspriessend,*
*Wölbt sich des bunten Bogens Wechseldauer,*
*Bald rein gezeichnet, bald in Luft zerfliessend,*
*Umher verbreitend duftig kühle Schauer.*
Der *spiegelt ab das menschliche Bestreben.*
*Ihm sinne nach, und du begreifst genauer:*
*Am farbigen Abglanz haben wir das Leben.*